

The Detroit Children's Health Study: An Examination of the Effects of Ambient Air Exposure on the Respiratory Health of Asthmatic Children

Ann Houston Williams¹, Gina Lisa Andrews¹, Shaibal Mukerjee², Lucas Neas¹

¹ORD/NHEERL/ Human Studies Division (HSD)/EBB

²ORD/NERL/Human Exposure and Atmospheric Sciences Division (HEASD)



Exposures

Mobile Source Emissions

- Local car and truck traffic
- Interstate traffic
- International border crossings

Urban Air Toxics

- Manganese
- Volatile Organic Compounds
- Other Air Toxics from Industrial Sources



Exposure Monitoring

Late summer of 2005

Four one-week periods at 25 schools

Nitrogen dioxide

- Ogawa passive samplers

Volatile Organic Compounds

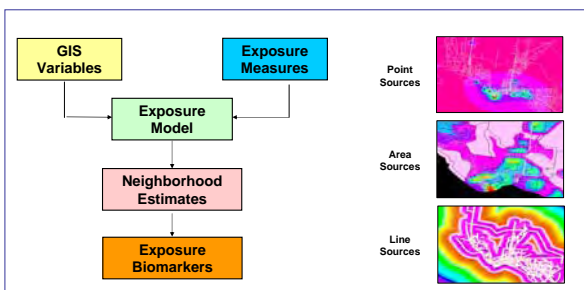
- Carbopack X passive samplers
- Petroleum and process-related compounds



Particulate Matter

- Wagner-Leith Passive Aerosol Samplers
- SEM analysis of metals for source apportionment

Exposure Assessment



Questions to be Addressed:

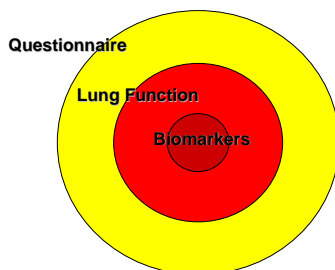
• How do **urban air pollution levels** differ from neighborhood-to-neighborhood?

• Are ambient pollutant exposures reflected in **clinical / biological markers of exposure**?

• Are exposure biomarkers predictive of differences in **biomarkers of early effect**?

• What role do neighborhood differences in urban air pollutants play in the **development of allergies and asthma**?

Nested Research Studies



Schools and Sources



Detroit Children's Health Study

School-based Health Data Collection

- Questionnaires (Parental-Report)
 - 15,000 children
 - Asthma and wheeze-related symptoms
 - Home environment (molds / pests / ETS)
- Examinations (In-school subset)
 - Lung function 3,500 children
 - Exhaled nitric oxide 2,000 children

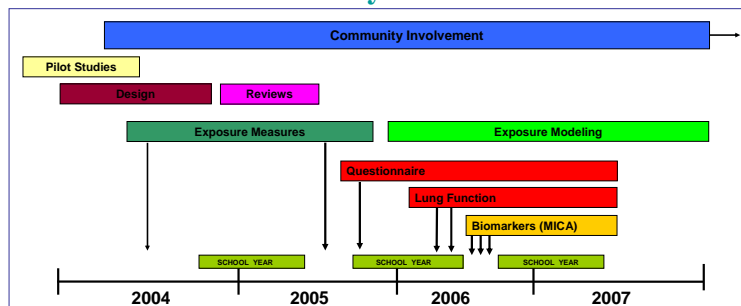


Study Participants

- Public schools
- Detroit and Dearborn
- 60 selected elementary schools
- 4th and 5th grade students
- Parents and guardians



Study Schedule



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Collaborative Science
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2005
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